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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,322	09/16/2003	John D. Hottovy	CPCM:0017/FLE 210328US1	1334
7590	06/25/2004		EXAMINER	
			DOROSHENK, ALEXA A	
			ART UNIT	PAPER NUMBER
			1764	

DATE MAILED: 06/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/663,322

Applicant(s)

HOTTOVY ET AL.

Examiner

Alexa A. Doroshenk

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-66 is/are pending in the application.
- 4a) Of the above claim(s) 39-52 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15-29, 31-38 and 53-65 is/are allowed.
- 6) ☒ Claim(s) 1, 4-14, 30 and 66 is/are rejected.
- 7) ☒ Claim(s) 2 and 3 is/are objected to.
- 8) ☒ Claim(s) 1-66 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2-13-04.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-38 and 53-66, drawn to an apparatus, classified in class 422, subclass 132.

II. Claims 39-52, drawn to a method, classified in class 526, subclass 64.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus can be used to practice another different process such as one which does use polyolefin particles.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

5. During a telephone conversation with John Rariden on June 22, 2004 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-38 and 53-66. Affirmation of this election must be made by applicant in

replying to this Office action. Claims 39-52 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Drawings

7. The drawings are objected to because in figure 4, the examiner believes that the part numbers "2a" should be "20a" and the part numbers "324a" should be "24a". Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of

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any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

8. The disclosure is objected to because of the following informalities:

In the Brief Description of the Drawings on page 5, a description of figure 7 is missing.

On page 15, line 10 of paragraph 0055, "impeller 24b" is misidentified and should be "impeller 22b".

On page 17, paragraph 0060 refers to "blades 74" in figure 5, but no such number is found in figure 5.

On page 17, paragraph 0062 refers to "a pipe 21" in figure 6, but no such number is found in figure 6.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1, 9, 13, 14 and 66 are rejected under 35 U.S.C. 102(b) as being anticipated by Kendrick et al. (US 6,204,344 B1).

With respect to claim 1, Kendrick et al. discloses a reactor comprising:

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a plurality of major and minor segments connected together to for a continuous flow path for a fluid slurry (1);

at least two pumps and impellers (2A and 2B) disposed in the flow path of the reactor (1);

wherein two impellers face each other (see figure 1) and are close enough (being that the are in the continuous loops) so the benefit from the energy of the other impeller;

means for introducing olefin monomer (42);

means for introducing diluent (41);

means for introducing catalyst (7A and 7B); and

means for removing slurry (8A) from the continuous flow path (1).

The recitation of the direction of rotation of the impellers is found to be an operational condition which is not given weight in an apparatus claim. An apparatus claim covers what a device is, not what it does. MPEP 2114.

With respect to claim 9, it can be seen in figure 1 that the blades of the impeller are solid and without substantial voids.

With respect to claims 13 and 14, it can be seen in figure 1 that the major segments are vertical and/or horizontal.

With respect to claim 66, Kendrick et al. discloses:

a loop reactor (1);

means for introducing monomer (42);

means for introducing catalyst (7A and 7B);

means for removing product (8A) from the continuous flow path (1); and

at least one flow pump impeller (2A and 2B) disposed in the flow path of the reactor (1).

11. Claim 66 is rejected under 35 U.S.C. 102(b) as being anticipated by Hottovy et al. (US 6,239,235 B1).

Hottovy et al. discloses:

a loop polymerization loop reactor (10);

means for introducing monomer (26/28);

means for introducing catalyst (32);

means for removing product (34) from the continuous flow path (10); and

at least one flow pump impeller (22) disposed in the flow path of the reactor (10).

12. Claim 66 is rejected under 35 U.S.C. 102(b) as being anticipated by Hottovy et al. (5,183,866).

Hottovy et al. discloses:

a loop polymerization loop reactor (10);

means for introducing monomer (14);

means for introducing catalyst (17);

means for removing product (18) from the continuous flow path (10); and

at least one flow pump impeller (11) disposed in the flow path of the reactor (10).

13. Claim 66 is rejected under 35 U.S.C. 102(b) as being anticipated by Hanson (5,575,979).

Hanson discloses:

a loop polymerization loop reactor (10);

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means for introducing monomer (14);
means for introducing catalyst (20);
means for removing product (22) from the continuous flow path (10); and
at least one flow pump impeller (12) disposed in the flow path of the reactor (10).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kendrick et al. (US 6,204,344 B1).

With respect to claims 10-12, Kendrick et al. does not explicitly disclose the volume of the loop reactor zone, a change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 220 F.2d 459, 105 USPQ 237 (CCPA 1955). Where the only difference between the prior art and the claims is a recitation of relative dimensions of the claimed device, and the device having the claimed dimensions would not perform differently than the prior art device, the claimed device is not patentable distinct from the prior art device, Gardner v. TEC Systems, Inc., 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984). One would be motivated to scale up the reactor since it is well known in the art that a large reactor can produce more in the same amount of time as a smaller reactor.

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16. Claims 4-7, 10-12 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kendrick et al. (US 6,204,344 B1), as applied to claim 1 above, and further in view of Hottovy et al. (US 6,239,235 B1).

With respect to claims 4 and 7, Kendrick et al. discloses all of the limitations as discussed above, but does not disclose wherein the impeller is situated in an enlarged section of one of the segments and that the enlarged section and impeller have diameters greater than the diameter of the segments.

Hottovy et al. also discloses loop reactor for slurry polymerization which comprises an impeller (22) in a segments of the reactor. Hottovy et al. teaches wherein the impeller is situated in an enlarged section of one of the segments and that the enlarged section and impeller have diameters greater than the diameter of the segments (see figure 8) to serve as a propulsion zone for the circulating reactants (col. 6, lines 44-48). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide an enlarged section and impeller in the loop reactor of Kendrick et al. as taught by Hottovy et al. in order to provide a propulsion zone for the circulating reactants.

With respect to claims 5, 6 and 30, Kendrick et al. does not discuss the clearance of the impeller.

Hottovy et al. teaches that the impeller is used to generate a pressure differential, thus having a propulsion zone, and that this can be done by reducing the clearance between the impeller and the inside wall of the pump (col. 6, lines 44-60). It would have been obvious to one of ordinary skill in the art at the time the invention was made to

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apply the teaching of Hottovy et al. to the impeller of Kendrick et al. to have the clearance of the impeller reduced as much as possible in order to generate the needed pressure differential.

With respect to claims 10-12, Kendrick et al. only discloses examples of 11,500 gallons with respect to the volume of the reactor.

Hottovy et al. teaches means by which to allow for a polymerization loop reactor of 30,000 gallons or greater (col. 6, lines 12-16). It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the teaching of Hottovy et al. to the loop reactor of Kendrick et al. in order to increase the size and volume of the loop reactor.

17. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kendrick et al. (US 6,204,344 B1), as applied to claim 1 above, and further in view of Hottovy et al. (5,565,175).

With respect to claim 8, Kendrick et al. is completely silent as to the materials used for construction of the apparatus.

Hottovy et al. also teaches a polymerization loop reactor and teaches that the reactor is made of steel (col. 4, lines 14-60). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make any or all of the structural elements of the apparatus of Kendrick et al. out of steel as Hottovy et al. teaches that such a material is effect for use in a polymerization reactor.

Allowable Subject Matter

18. Claims 15-26, 27-29, 31-38 and 53-65 are allowed.

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19. Claims 2 and 3 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

20. The following is a statement of reasons for the indication of allowable subject matter: The prior art neither teaches nor suggests a loop reactor for polymerization which comprises two impeller disposed in the same segment, nor a guide vane within the flow path of the reactor, nor wherein a guide vane is arranged within the reactor to impart rotational motion in a direction opposite to that of an impeller, nor wherein a pump is within an arced pump case with the blades oriented at an angle between 0 to 90 degrees to the shaft and having a bulge positioned along the shaft so that a curved flow path is defined between the bulge and the pump case.

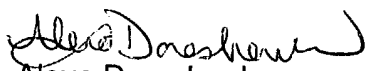
Conclusion

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexa A. Doroshenk whose telephone number is 571-272-1446. The examiner can normally be reached on Monday - Thursday from 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Alexa Doroshenk
Patent Examiner
Art Unit 1764

June 22, 2004